



Wireless Access Point

- ◆ Protocol-independent networking functionality
- ◆ 11 Mbps data rate per channel: provides alternative for wired LANs that can dramatically cut costs
- ◆ Coverage area 100ft at 11 Mbps, 1500ft at 5.5 Mbps or lower.
- ◆ Seamless connectivity to wired Ethernet LANs augments existing networks quickly and easily
- ◆ Direct Sequence Spread-Spectrum (DSSS) technology provides robust, and secure wireless connection
- ◆ Easy installation
- ◆ Omni-directional antenna



User Guide
SMC2652W

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THE EZ CONNECT WIRELESS ACCESS POINT

SMC2652W

SMC's EZ Connect Wireless Access Point is an 11 Mbps wireless repeater that seamlessly integrates with existing Ethernet networks to support applications such as mobile users or temporary conferences. This solution offers fast, reliable wireless connectivity with considerable cost savings over wired LANs (which include long-term maintenance overhead for cabling.) Just install enough wireless access points to cover your network area, plug wireless cards into your notebooks or install wireless adapters into your desktops, and start networking.

Using this device in conjunction with SMC's EZ Connect Wireless PC Cards, you can create an instant network that integrates seamlessly with 10 Mbps Ethernet LANs. Moreover, moving or expanding your network is as easy as moving or installing additional access points – no wires!

EZ CONNECT WIRELESS ACCESS POINT

Package Checklist

EZ Connect Wireless Access Point package includes:

- 1 EZ Connect Wireless Access Point (SMC2652W)
- 1 antenna (dipole, omni-directional)
- 1 DC power adapter
- 1 utility diskette
- This User Guide

Please register this product and upgrade product warranty at www.smc.com.

Please inform your dealer if there are any incorrect, missing or damaged parts. If possible, retain the carton, including the original packing materials. Use them again to repack the product in case there is a need to return it for repair.

Hardware Description

SMC's EZ Connect Wireless Access Point serves as a Media Access Control (MAC) bridge between your wired Local Area Network (LAN) and one or more Wireless Local Area Networks (WLANs).

Just attach the access point anywhere along your Ethernet LAN to provide wireless stations within its area of coverage with transparent access to the local wired and wireless LAN.

The EZ Connect Wireless Access Point supports an 11 Mbps half-duplex connection to Ethernet networks for each active channel. It is fully compliant with 2.4 GHz DSSS CSMA/CA wireless networking as defined in IEEE 802.11b, and 10 Mbps Ethernet as defined in IEEE 802.3

Applications

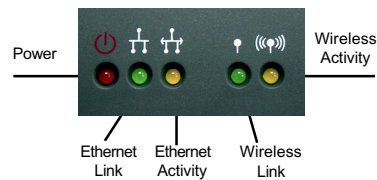
The EZ Connect Wireless products offer a fast, reliable, cost-effective solution for wireless client access to the network in applications such as:

- **Remote access to corporate network information**
E-mail, file transfer and terminal emulation
- **Difficult-to-wire environments**
Historical or old buildings, asbestos installations, and open areas where wiring is difficult to employ
- **Frequently changing environments**
Retailers, manufacturers and banks who frequently rearrange the workplace and change location
- **Temporary LANs for special projects or peak time**
Trade shows, exhibitions and construction sites which need temporary setup for a short time period. Retailers, airline and shipping companies who need additional workstations for a peak period. Auditors who require workgroups at customer sites.
- **Access to databases for mobile workers**
Doctors, nurses, retailers, white-collar workers who need access to databases while being mobile in the hospital, retail store or office campus.
- **SOHO (Small Office and Home Office) users**
SOHO users who need easy and quick installation of a small computer network functions.

EZ CONNECT WIRELESS ACCESS POINT

LED Indicators

The EZ Connect Wireless Access Point includes five status LED indicators, as described in the following figure and table.



LED	Status	Description
Power	On Red	Indicates that power is being supplied.
Ethernet Link	On Green	Indicates a valid Ethernet cable link.
Ethernet Activity	Flashing Yellow	Indicates that the access point is transmitting or receiving data on the 10 mbps Ethernet LAN.
Wireless Station Link	Flashing Green	Indicates valid wireless station links. The rate of flashing increases with the number of links.
Wireless Activity	Flashing Yellow	Indicates that the access point is receiving or transmitting data through wireless links.

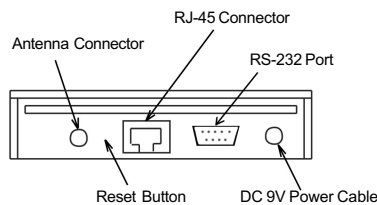
System Requirements

Before you install the EZ Connect Wireless Access Point, be sure you can meet the following requirements:

- An A/C power outlet (100~240V, 50~60Hz) which will supply power for the access point
- An available RJ-45 (UTP) port on a 10BASE-T Ethernet hub or switch.
- 802.11 compliant wireless ethernet adapters with TCP/IP compatible protocol installed.
- Web Browser for configuration.

INSTALLATION

1. Select the Site - Choose a proper place for your SMC2652W Access Point. In general, the best location to place the access point is at the center of your wireless coverage area, within line of sight to all your mobile stations.
2. Attach the Antenna - Screw the antenna into the antenna connector (ANT) on the back panel. Proper placement will improve performance. Try to place the access point in a position that can best cover its BSS (refer to page 13). Normally, the higher you place the antenna, the better the performance.



3. Connect the Ethernet Cable - The SMC2652W can be wired to a 10 BASE-T Ethernet with a network device such as a hub or a switch. Connect into the RJ-45 connector socket on the back panel with category 3, 4 or 5 UTP Ethernet cable and an RJ-45 connector.
4. Connect the Power Cable - Connect the power adapter cable to the 9V DC power Socket on the rear panel.

Warning: ONLY USE the power adapter supplied with the SMC2652W. Otherwise, the product may be damaged.

CONFIGURATION

Your SMC2652W is a Plug and Play device. This means that you do not need to configure it in most cases.

If you are adding this device into an already existing wireless network, or if you need to configure some advanced settings, follow the instructions below.

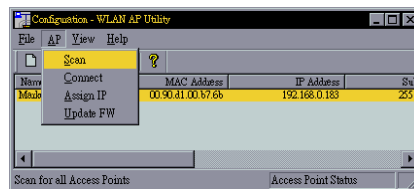
The diskette labeled “Utility Diskette” that comes with the package contains a utility program for the EZ Connect Wireless Access Point. Any updates can be downloaded from SMC’s Web site at <http://www.smc.com>.

Warning: Back up your utility diskette and use the copy as the working diskette to protect the original from accidental damage.

The SMC2652W can be configured over an Ethernet network using RJ-45 cable. You may connect the SMC2652W to a network device such as a hub or switch. Then, run the utility program, and configure the SMC2652W remotely as described below.

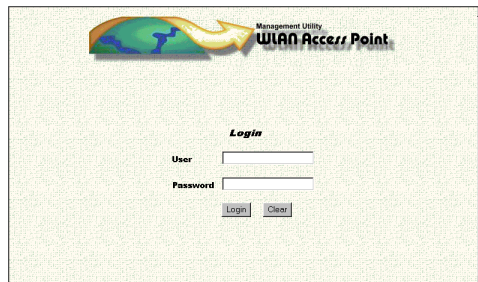
Windows NT/95/98/2000 Installation

1. Insert the SMC2652W utility disk into the floppy drive on your PC, and then enter the following command: “A:\utility\setup.” Follow the on-screen instructions to install the utility program.
2. When you run the installed utility, click on “AP” and then select “Scan” from the menu. The program will then detect all the SMC2652Ws wired to the Ethernet network.

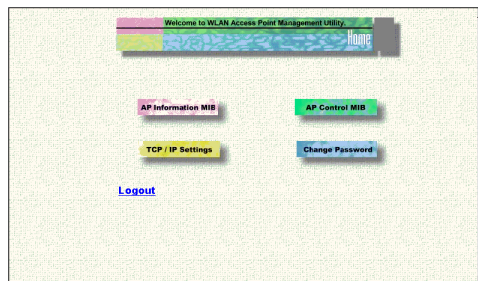


EZ CONNECT WIRELESS ACCESS POINT

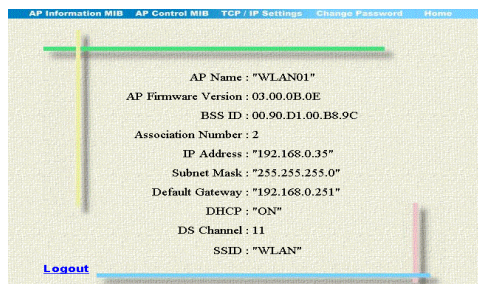
3. From the list of detected SMC2652Ws, select and double click on the unit you want to configure. The web browser page will appear as follows::



4. Enter the user name "default" and password "WLAN_AP." This will take you to the home page.



5. Click on "AP Information MIB", "AP Control MIB", "TCP/IP Settings", or "Change Password" to select the page required.



The AP Information MIB screen displays the categories of information shown above.

EZ CONNECT WIRELESS ACCESS POINT

In the AP Control MIB page, set the parameters and then click on “Apply” to implement the settings.

DS Channel - Set the channel number as the operating radio channel.

Note: The available channel settings are displayed to the right of the “DS Channel” field. Local regulations determine which channels are available.

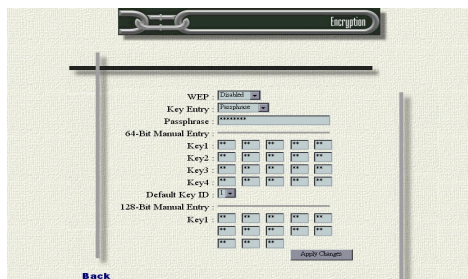
FCC/IC: 1-11, ETSI: 1-13, France: 10-13, Spain: 10-11, MKK: 1-14.

SSID - This should be set to the same value as other stations in your network. (Default: “WLAN”)

RTS Threshold - Set the RTS Threshold to the same as that used by other devices in your network. (Default: 2,305, which means Disabled)

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Encryption - Click Encryption icon for the WEP setting.



WEP - For more secure data transmission, set the “Wep” to “WEP_128” or “WEP_64” to ensure wireless network security. The advanced Wired Equivalent Privacy (WEP) is implemented in this device to prevent unauthorized access. The 128 bit setting gives a higher level of security but the setting must be the same as other clients in your wireless network. (Default: Disabled)

Key Entry - This field can be set to “Passphrase” or “Manual Entry”. The “Passphrase” means the key elements will be auto generated by the internal algorithm according to the string defined in the Passphrase field. The “Manual Entry” means the key elements allow/need user key in by manually. (2 Hexadecimal digitals in each block)

Passphrase - The security key for WEP encryption is generated from your Passphrase string, so it should be the same as all the other stations in your network.

64-Bit Manual Entry:

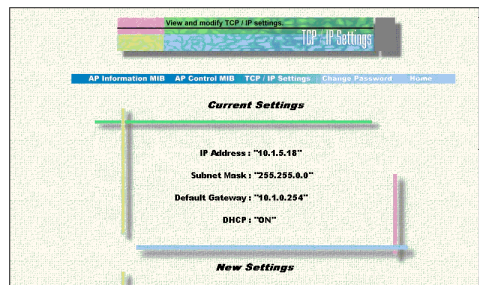
Key 1~4 - Each Key ID contains 10 HEX digits. All wireless devices must have the same Key ID element values to communicate.

Default Key ID - Choose the Key ID that has the encryption string you prefer.

128-Bit Manual Entry:

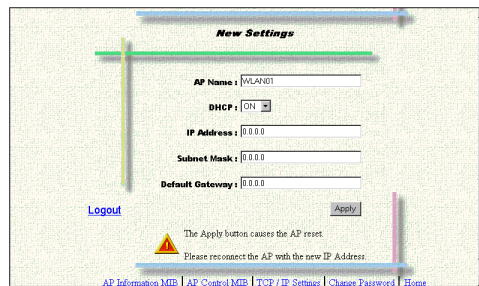
Key 1 - Key ID value contains 26 HEX digits. All wireless must have the same Key ID element values to communicate.

EZ CONNECT WIRELESS ACCESS POINT



The screenshot shows the 'TCP/IP Settings' page of the EZ Connect Wireless Access Point. At the top, there is a navigation bar with links: 'AP Information MIB', 'AP Control MIB', 'TCP / IP Settings', 'Change Password', and 'Home'. Below the navigation bar, the page title is 'View and modify TCP / IP settings'. The main content area is divided into two sections: 'Current Settings' and 'New Settings'. The 'Current Settings' section displays the following information: IP Address: '10.1.5.18', Subnet Mask: '255.255.0.0', Default Gateway: '10.1.0.254', and DHCP: 'ON'.

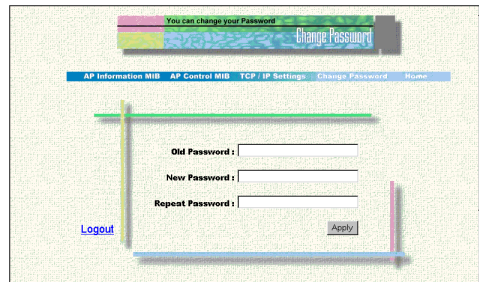
The TCP/IP settings page allows you to review and change the network settings on the access point.



The screenshot shows the 'New Settings' section of the 'TCP/IP Settings' page. It contains input fields for 'AP Name' (set to 'WLAN01'), 'DHCP' (set to 'ON'), 'IP Address' (set to '0.0.0.0'), 'Subnet Mask' (set to '0.0.0.0'), and 'Default Gateway' (set to '0.0.0.0'). There is a 'Logout' link on the left and an 'Apply' button on the right. Below the 'Apply' button, a warning message states: 'The Apply button causes the AP reset. Please reconnect the AP with the new IP Address.' The navigation bar at the bottom is identical to the previous screenshot.

With DHCP "ON", the IP address and subnet mask are set automatically. If you want to set these yourself, enter a new IP address and subnet mask in the "New Settings" section of the "TCP/IP Settings" screen, then click on "Apply."

EZ CONNECT WIRELESS ACCESS POINT



The screenshot shows a web-based configuration interface for an EZ Connect Wireless Access Point. At the top, a banner reads "You can change your Password" and "Change Password". Below this is a navigation bar with links: "AP Information MIB", "AP Control MIB", "TCP / IP Settings", "Change Password", and "Home". The main content area contains three text input fields labeled "Old Password:", "New Password:", and "Repeat Password:". To the left of these fields is a "Logout" link, and to the right is an "Apply" button. The interface has a light green background with a subtle pattern.

In the Change Password screen you may change the password on the access point.

A password is required to configure the SMC2652W Access Point. We suggest changing your password from the default value to ensure network security.

NETWORK CONFIGURATION AND PLANNING

SMC's EZ Connect Wireless Solution supports a stand-alone wireless network configuration, as well as an integrated configuration with 10Mbps Ethernet LANs.

The SMC wireless network cards and adapters can be configured as:

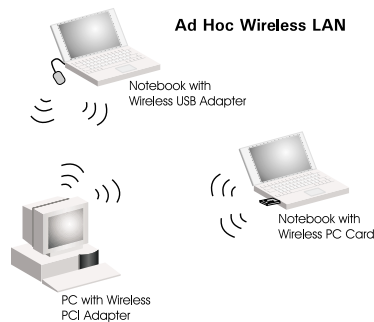
- Ad hoc for departmental or SOHO LANs
- Infrastructure for enterprise LANs

Network Topologies

Ad Hoc Wireless LAN

An ad hoc wireless LAN consists of a group of computers, each equipped with a wireless adapter, connected via radio signals as an independent wireless LAN. Computers in a specific ad hoc wireless LAN must therefore be configured to the same radio channel.

An ad hoc wireless LAN can be used for a branch office or SOHO operation.

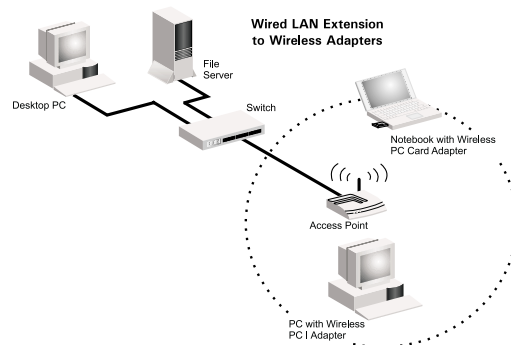


Infrastructure Wireless LAN

The SMC2652W can also provide access to a wired LAN for wireless workstations. An integrated wired and wireless LAN is called an Infrastructure configuration. A Basic Service Set (BSS) consists of a group of wireless PC users, and an access point that is directly connected to the wired LAN. Each wireless PC in this BSS can talk to any computer in its wireless group via a radio link, or access other computers or network resources in the wired LAN infrastructure via the access point.

The infrastructure configuration not only extends the accessibility of wireless PCs to the wired LAN, but also doubles the effective wireless transmission range for wireless PCs by passing their signal through one or more access points.

A wireless infrastructure can be used for access to a central database, or for connection between mobile workers, as shown in the following figure.



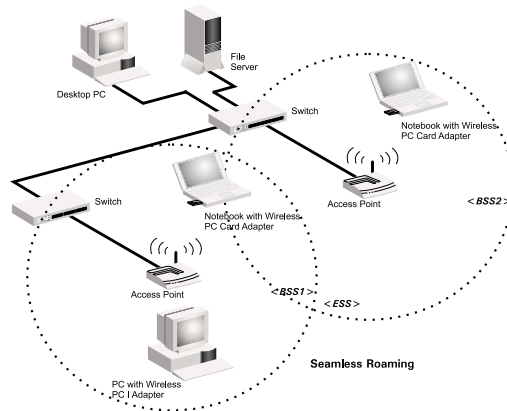
Setting the Communication Domain

Stationary Wireless PCs

The Basic Service Set (BSS) is the communication domain for each SMC2652W access point. For wireless PCs that do not need to support roaming, set the domain identifier (SSID) for the wireless card to the BSS ID of the access point you want to connect to. Check with your administrator for the BSS ID of the SMC2652W access point he wants you to connect to.

Roaming Wireless PCs

A wireless infrastructure can also support roaming for mobile workers. More than one access point can be configured to create an Extended Service Set (ESS). By placing the access points so that a continuous coverage area is created, wireless users within this ESS can roam freely. All SMC wireless network cards and adapters and SMC2652W access points within a specific ESS must be configured with the same SS ID.



TROUBLESHOOTING

Check the following items before contacting SMC Technical Support.

1. If mobile users do not have roaming access to the SMC2652W access point, check the following:
 - Make sure that all the SMC2652Ws and stations in the ESS in which the WLAN mobile users can roam are configured to the same WEP setting, SSID and authentication algorithm.
2. If the SMC2652W cannot be configured using the web browser:
 - Remove power from the SMC2652W.
 - Push in the reset button located on the back of the SMC2652W.
 - While holding in the button, apply power to the AP.
 - Wait until both the RF Activity LED, and the RF Link LED both start to flash and off together.
 - Release the Push Button and the LEDs will turn off. You are now in the Control Mode.
 - Select the desired function by pressing the reset button (Note: hold the button until the LEDs change to the next configuration).

Link LED	Activity LED	Action
OFF	OFF	No Action, will boot normally
OFF	ON	Revert to Factory Default settings.
ON	OFF	Force boot from Primary code image
ON	ON	No Action, will boot normally

The function changes to the next in sequence every time the Push Button is pressed. The pattern repeats (Function: 0,1,2,3,0,1,2,3,0,...) as the Push Button is pressed repeatedly.

EZ CONNECT WIRELESS ACCESS POINT

Control Mode is automatically exited when the AP has not detected any Push Button pressed for approx. 3 seconds. At that point it will flash both LEDs twice, indicating it is proceeding with the boot.

SMC Networks 802.11b Wireless Product Maximum Distance Table

Important Notice:

Maximum distances posted below are actual tested distance thresholds. However, there are many variables such as barrier composition and construction and local environmental interference that may impact your actual distances and cause you to experience distance thresholds far lower than those we post below. If you have any questions or comments regarding the features or performance of this product, or if you'd like information regarding our full line wireless products, you can visit us on the web of www.smc.com or you can call us toll-free at 800.SMC.4YOU. SMC Networks stands behind this and every product we sell with a 30 day satisfaction guarantee and with a limited-lifetime warranty.

SMC Wireless Products				
Maximum Distance Table				
Environmental Condition	Speed and Distance Ranges			
	11 Mbps	5.5 Mbps	2 Mbps	1 Mbps
Open Environment: A "line-of-site" environment with no interference or obstructions between Access Point and Users.	160 m (524 ft)	270 m (886 ft)	400 m (1312 ft)	457 m (1500 ft)
Semi-Open Environment: An environment with no major obstructions such as walls or privacy cubicles between Access Point and users.	50 m (164 ft)	70 m (230 ft)	90 m (295 ft)	120 m (394 ft)
Closed Environment: A typical office or home environment with floor to ceiling obstructions between Access Point and users.	25 m (82 ft)	35 m (115 ft)	45 m (148 ft)	55 m (180 ft)

COMPLIANCES

FCC Class B Certification

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning! This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

CSA Statement (Canada)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radio-électriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par l'Industrie.

CE Mark Declaration of Conformance

This is to certify that this product complies with ISO/IEC Guide 22 and EN45014. It conforms to the following specifications:

EMC: EN55022(1988)/CISPR-22(1985) Class B

IEC 61000-4-2(2000)	4kVCD/8kVAD
IEC 61000-4-3(2000)	3V/m
IEC 61000-4-4(2000)	1kV- (power line)
IEC 61000-4-6(2000)	3Vrms
IEC 61000-4-11(2000)	3Vrms

EZ CONNECT WIRELESS ACCESS POINT

SPECIFICATIONS

Model

SMC2652W

Maximum Channels

US & Canada: 11, Europe (ETSI): 13, Japan: 14

Maximum Clients

128

Operating Range

100ft (30m) at 11 Mbps, 1500ft (450m) at 5.5 Mbps
or lower

Cell Separation (for roaming clients)

200ft (60m) between access points

Data Rate

1, 2, 5.5, 11 Mbps per channel

Network Configuration

LAN to access point to wireless card,
access point to wireless card,

Operating Frequency

USA, Canada: 2.400-2.4835 GHz,
Europe(ETSI): 2.400-2.4835 GHz,
Japan: 2.400-2.497 GHz

Sensitivity

1, 2, 5.5 Mbps: -80 dBm,
11 Mbps: -76 dBm typical

Modulation

CCK, BPSK, QPSK

Power supply

Input: 100-240 AC, 50-60 Hz;
Output: 9 VDC, 1A

Output Power

+13 dBm minimum

Physical Size

5.12 x 7.09 x 1.58 in, (13 x 18 x 4 cm)

Weight

12.9 oz, (365 grams)

EZ CONNECT WIRELESS ACCESS POINT

LED Indicators

Power, Ethernet Link, Ethernet Activity,
Wireless Link, Wireless Activity

Network Management

HTML web-browser interface
Windows 95/98/NT/2000 utility

Operating Systems

Windows 95/98, Windows NT/2000

Temperature

Operating: 32 to 122°F (0 to 50°C)
Storage: 32 to 158°F, (0 to 70°C)

Humidity

5% to 8% (non-condensing)

Compliances

CE Mark

EN55022 Class B

EN55024

IEC 61000-42/3/4/6/11

Emissions

FCC Part 15(B)

ETS 300 328

RCR STD-33A

Safety

CSA/NTRL (CSA 22.2 No. 950 & UL 1950)

EN60950 (TÜV/GS)

Vibration/Shock/Drop

IEC 68-2-34/IEC 68-2-32

Standards

IEEE 802.3 10BaseT, IEEE 802.11b

Warranty

Limited Lifetime

FOR TECHNICAL SUPPORT, CALL:

From U.S.A. and Canada (8:30 AM - 8:00 PM Pacific Time)
(800) SMC-4-YOU; (949) 707-2400; (949) 707-2460 (Fax)
From Europe (8:00 AM - 5:30 PM UK Greenwich Mean Time)
44 (0) 1189748740; 44 (0) 1189748741 (Fax)

INTERNET

E-mail addresses:

techsupport@smc.com
european.techsupport@smc-europe.com

Driver updates:

<http://www.smc.com/support.html>

World Wide Web:

<http://www.smc.com/>

FTP Site:

<ftp.smc.com>

FOR LITERATURE OR ADVERTISING RESPONSE, CALL:

U.S.A. and Canada:	(800) SMC-4-YOU;	Fax (949) 707-2460
Spain:	34-93-477-4920;	Fax 34-93-477-3774
UK:	44 (0) 1189 748700;	Fax 44 (0) 1189 748701
Southern Europe:	33 (1) 41.18.68.68;	Fax 33 (1) 41.18.68.69
Central/E. Europe:	49 (0) 89 92861-200;	Fax 49 (0) 89 92861-230
Nordic:	46 (8) 564 33145;	Fax 46 (8) 87 62 62
Middle East:	971-48818410;	Fax 971-48817993
South Africa:	27 (0) 11-3936491;	Fax 27 (0) 11-3936491
PRC:	86-10-6235-4958;	Fax 86-10-6235-4962
Taiwan:	886-2-2747-4780;	Fax 886-2-2747-9220
Asia Pacific:	(65) 238 6556;	Fax (65) 238 6466
Korea:	82-2-553-0860;	Fax 82-2-553-7202
Japan:	81-45-224-2332;	Fax 81-45-224-2331
Australia:	61-2-9416-0437;	Fax 61-2-9416-0474
India:	91-22-8204437;	Fax 91-22-8204443

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